

NorCal Engineering
Soils and Geotechnical Consultants
10641 Humbolt Street Los Alamitos, CA 90720
(562) 799-9469 Fax (562) 799-9459

OCT 31 2005

October 27, 2005

Project Number 11233-04
Permit No. 04030-10000-02507

Boeing Realty Corp
15480 Laguna Canyon Road #200
Irvine, California 92618

RE: Final Geotechnical Report - Observation and Testing for Proposed Office/Warehouse Project – Located at 1451 West Knox Street, in the City of Los Angeles, California (Lot 8, Tract 52172)

Dear Sirs:

Pursuant to your request, this firm has provided this geotechnical report to summarize the observation and testing performed during grading operations at the above referenced project. The geotechnical aspects of the rough grading were conducted in accordance with our report titled "Geotechnical Investigation" dated March 13, 2004, Project Number 11233-04. Our geotechnical services pertaining to the grading of the project development are summarized in the subsequent sections of this report.

Previous Site Work

The property was previously graded between February, 2001 and May, 2002 during mass grading of the area. All existing fill soils on the subject lots were removed to competent native soils and the bottom observed and approved by a representative of this firm prior to replacement of compacted fill soils. Approximately 10 to 30 feet of fill was placed on site, although local variations in the excavation bottom could cause the actual fill depth to vary slightly.

No subsurface obstructions were abandoned in place on the subject lots during grading operations. The report dated in 2002, by NorCal Engineering details the rough grading of the property. A copy of the approval letter for our compaction report and the soils report approval letter are included in Appendix C.

The fill placed was certified as a "secondary fill", suitable for placement of slabs-on-grade and pavement. The referenced geotechnical investigation and testing was performed in order to reclassify the fill as "primary", suitable for placement of structural foundations as well as slabs-on-grade and pavement.

Site Grading

The purpose of the grading operations was for the placement of fill to provide primary support (building pad, foundation and pavement areas) of the proposed development. All vegetation and demolition debris was stripped and removed from the fill area prior to the placement of any fill soils. The upper low density surface soils (upper 12 to 18 inches) were removed to competent engineered fill and the bottom approved by a representative of this firm prior to placement of compacted fill soils. The exposed surface was scarified, moisture conditioned and then recompactd to a minimum of 90% relative compaction. Excavated soils were reutilized as compacted fill once any deleterious or oversized material (in excess of eight inches) was removed.

Foundation areas are underlain by a sufficient thickness of engineered fill to provide a minimum three feet thick compacted fill blanket beneath foundations. In the opinion of this firm, the engineered fill soils are suitable to support the placement of fill material. Grading extended a minimum of five horizontal feet or to the depth of fill placed, whichever is greater, beyond the edge of the proposed foundations.

Fill soils placed were compacted to a minimum 90% of the laboratory standard in lifts not in excess of eight inches in thickness. Areas that tested below 90% compaction were reworked and retested until a minimum of 90% relative compaction and near optimum moisture levels could be achieved. The maximum depth of fill soils placed was approximately 5 feet in the building pad area. The upper one foot of the building pad was compacted to a minimum of 95% of the laboratory standard.

NorCal Engineering

No import soils were used during recent grading operations. The soil bearing capacity of the compacted fill on-site was established using shear test data included in our March, 2004 report. A copy of the shear test results is attached in Appendix A.

Conventional earthmoving equipment was utilized for compaction control. A water truck provided moisture control. Our services did not include any surveying of excavation bottoms, building corners, or subgrade elevations during grading operations.

Laboratory/Field Testing

The relative compaction was determined by Sand Cone Method (ASTM: D1556-00). The maximum density of the fill soils was obtained by the laboratory standard (ASTM: D1557-00) and results are shown on Table I. Tests were performed a minimum of every 500 cubic yards placed and every two feet in depth of fill placed. A summary of the compaction tests are described in Appendix B with locations shown on the accompanying plan. Additional laboratory tests were performed on representative bulk bag samples of the near surface soils at the completion of precise grading operations. The tests consisted of the following:

- A. Expansion index tests in accordance with the Uniform Building Code Standard No. 18-2 were performed on remolded samples of the upper soils to determine the expansive characteristics and to provide any necessary recommendations for reinforcement of the slabs-on-grade and the foundations. Results of these tests are provided on Table II in Appendix A.
- B. Soluble sulfate tests in accordance with California Test Method 417 were performed on representative soils samples to estimate the potential for corrosion of concrete in contact with the on-site soils. Results are provided on Table III in Appendix A.
- C. Direct shear tests (ASTM: D-3080) were performed on undisturbed and disturbed samples of the subsurface soils. The test is performed under saturated conditions at loads of 500 lbs./sq.ft., 1,000 lbs./sq.ft., and 2,000 lbs./sq.ft. with results provided on Table IV in Appendix A.

Foundation Design

All foundations may be designed utilizing the following allowable soil bearing capacities for an embedded depth of 24 inches into stiff compacted fill materials with the corresponding widths:

Allowable Soil Bearing Capacity (psf)

<u>Width (ft)</u>	<u>Continuous Foundation</u>	<u>Isolated Foundation</u>
1.5	2000	2500
2.0	2050	2550
4.0	2250	2750
6.0	2450	2950

A substantial decrease in the above bearing capacities will be necessary if the required compacted fill blanket is not provided beneath and outside of foundations. A one-third increase may be used when considering short term loading from wind and seismic forces. Foundations located at property line shall utilize a reduced allowable soil bearing capacity of 1,500 psf. Foundations shall be embedded a minimum of 24 inches below lowest adjacent soil grade and into stiff compacted fill soils as verified by the soil engineer.

All continuous foundations shall be reinforced with a minimum of four, #4 bars, two top and bottom. Isolated foundations may be reinforced at the discretion of the project structural engineer. In addition, foundation excavations observed and approved by a representative of this firm prior to pouring concrete were embedded into competent bearing material.

Slab Design

All concrete slabs-on-grade in warehouse and office areas shall be at least 6 and 5 inches in thickness, respectively, and may be placed on fill soils compacted to a minimum of 95% relative compaction in the upper 12 inches. Soils below the upper 12 inches may be compacted to 90%. Slabs shall be minimally reinforced with #4 bars placed at 16 inches on-center, positioned mid-height in the slab. Additional reinforcement requirements and an increase in thickness of the slabs-on-grade may be necessary based upon proposed loading conditions in the structures. Such loadings should be submitted to the structural and soils engineers for review.

NorCal Engineering

Concrete slabs-on-grade may delete steel reinforcement provided concrete is a minimum of 7 inches in thickness. This recommendation is applicable for interior floor slab areas and exterior concrete pavement.

A vapor barrier should be utilized in areas which would be sensitive to the infiltration of moisture. This membrane should be placed within a 4 inch thick sand layer and not directly beneath the slab. Subgrade soils shall be moistened to approximately 130% of optimum levels to a depth of 18 inches as verified by the soils engineer immediately prior to pouring of concrete. All concrete slab areas to receive floor coverings should be moisture tested to meet all manufacturer requirements prior to placement.

Utility Trench Backfill

Fill soils placed were compacted to a minimum of 90% of the laboratory standard in lifts not in excess of eight inches in thickness. The on-site soils were utilized as backfill material with maximum depths consisting of the following:

	<u>Depth (ft)</u>
Sewer	9'
Vapor Extraction	4' (slurry capped with 1' fill)
Storm Drain	5'
Fire Service	3'
Electrical	3½'
Water	2'

It should be noted that the observation of backfill material (shading) placed within the "pipe zone" was not within the scope of our services. Compaction of the utility backfill soils was achieved by use of a backhoe mounted sheepsfoot wheel and hand operated compaction equipment. A water hose provided moisture control. A summary of compaction test results is provided in Appendix B and locations of these tests are shown on the attached plan.

Wall Backfill Operations

Construction of the retaining wall located along the north end of the site is under a separate City of Los Angeles Permit. A summary of the backfill operations in this area is provided in a separate compaction report (see report dated October 27, 2005, Project Number 11233-04A). The wall backfill test locations and results are also included with this report.

Pavement Subgrade

The pavement subgrade areas were fine graded and compacted to a minimum of 90% of the laboratory standard. The base section consisted of crushed miscellaneous base material tested to a minimum of 95% relative compaction. The maximum depth of base material placed was approximately twelve inches. Five and ten ton steel drum rollers were utilized for compaction control and a water truck provided moisture control. A summary of compaction tests of the fine grading operations are provided in Appendix B with locations shown on the accompanying plan. Our services did not include any surveying of pavement subgrade areas prior to placement of base materials and pavement.

Corrosion Design Criteria

Representative samples of the surficial soils, typical of the subgrade soils expected to be encountered within foundation excavations, revealed negligible sulfate concentrations. Therefore, all concrete in contact with on site soils shall be designed in accordance with Table 19A-A-4 of the Uniform Building Code. Sulfate test results may be found on the attached Table III.

Expansive Soil

Due to the expansive nature of the on site soils, special attention should be given to the project design and maintenance. The attached *Expansive Soil Guidelines* should be reviewed by the engineers, architects, owner, maintenance personnel and other interested parties and considered during the design of the project and future property maintenance.

NorCal Engineering

Limitations

It should be noted that our work does not warrant or guarantee that the contractor responsible for each phase of the project has performed his work in accordance with the project specifications.

We appreciate this opportunity to be of service to you. If you have any further questions, please do not hesitate to contact the undersigned.

Respectfully submitted,
NORCAL ENGINEERING

Keith D. Tucker

Keith D. Tucker
Project Engineer
R.G.E. 841



Walter K. Mott

Walter K. Mott
Project Manager

NorCal Engineering

NorCal Engineering

Soils and Geotechnical Consultants
10641 Humbolt Street Los Alamitos, CA 90720
(562)799-9469 FAX (562)799-9459

CITY OF LOS ANGELES

DEPARTMENT OF BUILDING AND SAFETY

ENGINEER'S CERTIFICATE OF COMPLIANCE FOR COMPACTED EARTH FILLS

JOB ADDRESS: 1451 West Knox Street, Los Angeles

PERMIT NO.: 04030-10000-02507

LEGAL DESCRIPTION: Tract 52172, Lot 8

SOIL TESTING AGENCY: NorCal Engineering

PROPERTY OWNER'S NAME: Boeing Realty Corp

OWNER'S ADDRESS: 15480 Laguna Canyon Road #200, Irvine 92618

PER REPORTS ON OUR PROJECT NUMBER: 11233-04

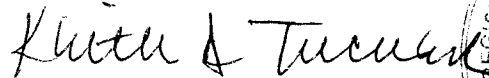
DATE OF WORK STARTED ON PROJECT: 1/17/05

DATE FILL WAS COMPLETED: 9/13/05

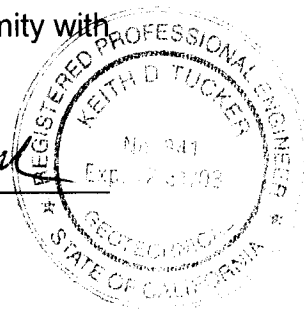
DATE OF THIS CERTIFICATE: 10/27/05

TO THE SUPERINTENDENT OF BUILDING:

I hereby certify that I have personally inspected and tested the placing of compacted earth fill on the above described property, and on the basis of these inspections and tests it is my opinion that the same was placed in conformity with the requirements of the Los Angeles City Building Code.



Keith D. Tucker
R.G.E. 841



*For the purpose of this certificate, to have "personally inspected and tested" shall include inspection and testing performed by any person responsible to the licensed engineer signing this certificate. Where the inspection and testing of all or part of the work above is delegated, full responsibility shall be assumed by the licensed engineer whose signature is affixed thereon.

Expansive Soil Guidelines

The following expansive soil guidelines are provided for your project. The intent of these guidelines is to inform you, the client, of the importance of proper design and maintenance of projects supported on expansive soils. ***You, as the owner or other interested party, should be warned that you have a duty to provide the information contained in the soil report including these guidelines to your design engineers, architects, landscapers and other design parties in order to enable them to provide a design that takes into consideration expansive soils.***

In addition, you should provide the soil report with these guidelines to any property manager, lessee, property purchaser or other interested party that will have or assume the responsibility of maintaining the development in the future.

Expansive soils are fine-grained silts and clays which are subject to swelling and contracting. The amount of this swelling and contracting is subject to the amount of fine-grained clay materials present in the soils and the amount of moisture either introduced or extracted from the soils. Expansive soils are divided into five categories ranging from "very low" to "very high". Expansion indices are assigned to each classification and are included in the laboratory testing section of this report. *If the expansion index of the soils on your site, as stated in this report, is 21 or higher, you have expansive soils.* The classifications of expansive soils are as follows:

Classification of Expansive Soil*

Expansion Index	Potential Expansion
0-20	Very Low
21-50	Low
51-90	Medium
91-130	High
Above 130	Very High

*From Table 18A-I-B of California Building Code (1988)

When expansive soils are compacted during site grading operations, care is taken to place the materials at or slightly above optimum moisture levels and perform proper compaction operations. Any subsequent excessive wetting and/or drying of expansive soils will cause the soil materials to expand and/or contract. These actions are likely to cause distress of foundations, structures, slabs-on-grade, sidewalks and pavement over the life of the structure. ***It is therefore imperative that even after construction of improvements, the moisture contents are maintained at relatively constant levels, allowing neither excessive wetting or drying of soils.***

Evidence of excessive wetting of expansive soils may be seen in concrete slabs, both interior and exterior. Slabs may lift at construction joints producing a trip hazard or may crack from the pressure of soil expansion. Wet clays in foundation areas may result in lifting of the structure causing difficulty in the opening and closing of doors and windows, as well as cracking in exterior and interior wall surfaces. In extreme wetting of soils to depth, settlement of the structure may eventually result. Excessive wetting of soils in landscape areas adjacent to concrete or asphaltic pavement areas may also result in expansion of soils beneath pavement and resultant distress to the pavement surface.

Excessive drying of expansive soils is initially evidenced by cracking in the surface of the soils due to contraction. Settlement of structures and on-grade slabs may also eventually result along with problems in the operation of doors and windows.

Projects located in areas of expansive clay soils will be subject to more movement and "hairline" cracking of walls and slabs than similar projects situated on non-expansive sandy soils. There are, however, measures that developers and property owners may take to reduce the amount of movement over the life the development. The following guidelines are provided to assist you in both design and maintenance of projects on expansive soils:

- Drainage away from structures and pavement is essential to prevent excessive wetting of expansive soils. Grades of at least 3% should be designed and maintained to allow flow of irrigation and rain water to approved drainage devices or to the street. Any "ponding" of water adjacent to buildings, slabs and pavement after rains is evidence of poor drainage; the installation of drainage devices or regrading of the area may be required to assure proper drainage. Installation of rain gutters is also recommended to control the introduction of moisture next to buildings. Gutters should discharge into a drainage device or onto pavement which drains to roadways.
- Irrigation should be strictly controlled around building foundations, slabs and pavement and may need to be adjusted depending upon season. This control is essential to maintain a relatively uniform moisture content in the expansive soils and to prevent swelling and contracting. Over-watering adjacent to improvements may result in damage to those improvements. NorCal Engineering makes no specific recommendations regarding landscape irrigation schedules.
- Planting schemes for landscaping around structures and pavement should be analyzed carefully. Plants (including sod) requiring high amounts of water may result in excessive wetting of soils. Trees and large shrubs may actually extract moisture from the expansive soils, thus causing contraction of the fine-grained soils.

- Thickened edges on exterior slabs will assist in keeping excessive moisture from entering directly beneath the concrete. A six-inch thick or greater deepened edge on slabs may be considered. Underlying interior and exterior slabs with 6 to 12 inches or more of non-expansive soils and providing presaturation of the underlying clayey soils as recommended in the soil report will improve the overall performance of on-grade slabs.
- Increase the amount of steel reinforcing in concrete slabs, foundations and other structures to resist the forces of expansive soils. The precise amount of reinforcing should be determined by the appropriate design engineers and/or architects.
- Recommendations of the soil report should always be followed in the development of the project. Any recommendations regarding presaturation of the upper subgrade soils in slab areas should be performed in the field and verified by the Soil Engineer.

APPENDICES

(In order of appearance)

Appendix A – Laboratory Tests

Table I – Maximum Density Tests

Table II – Expansion Index Tests

Table III – Sulfate Tests

Plate A - Direct Shear Tests

Appendix B – Summary of Compaction Tests

Site Plan

Summary of Compaction Tests

Appendix C – City of Los Angeles Approval Letters

NorCal Engineering

Appendix A

NorCal Engineering

TABLE I
MAXIMUM DENSITY TESTS
(ASTM: D1557-00)

<u>Sample</u>	<u>Classification</u>	<u>Optimum Moisture</u>	<u>Maximum Dry Density (lbs./cu.ft.)</u>
I	Silty sandy CLAY	13.5	124.0
II	Silty sandy CLAY	12.5	126.0
III	Silty sandy CLAY	12.0	125.5
IV	Silty sandy CLAY	10.0	126.5
V	SAND fine to coarse grained, silty	8.5	127.0
VI	Silty sandy CLAY	13.5	122.0
VII	Crushed Miscellaneous Base	8.0	125.0
VIII	Crushed Miscellaneous Base	9.0	130.0

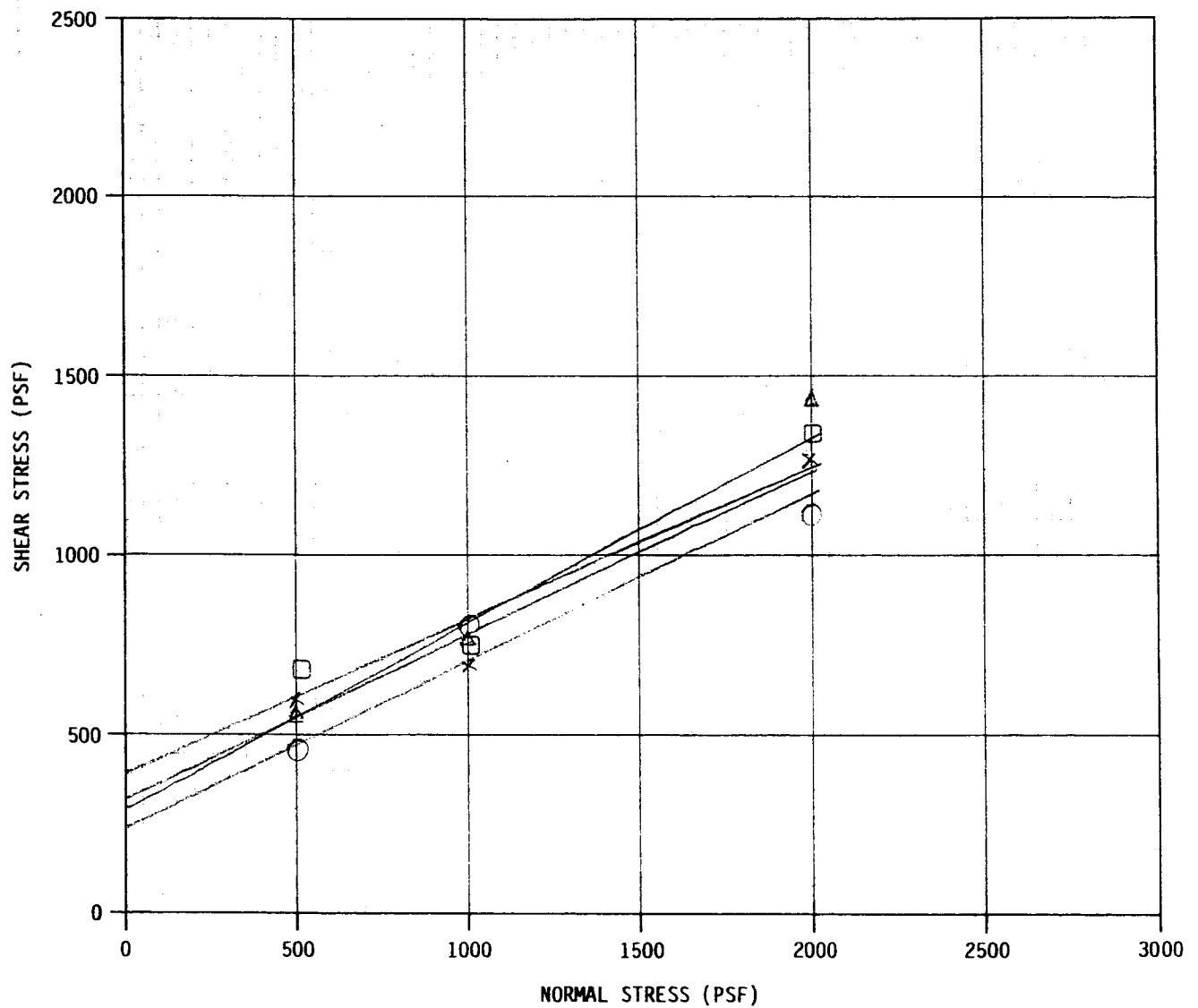
TABLE II
EXPANSION INDEX TESTS
(U.B.C. STD. 18-2)

<u>Sample</u>	<u>Classification</u>	<u>Expansion Index</u>
Pad Subgrade	Silty sandy CLAY	51

TABLE III
SULFATE TESTS
(CA. TEST METHOD 417)

<u>Sample</u>	<u>Sulfate (% by Weight)</u>
Pad Subgrade	0.016
Pad Subgrade	0.020
Pad Subgrade	0.011

NorCal Engineering



SYMBOL	BORING NUMBER	DEPTH (FEET)	ϕ (DEGREES)	C (PSF)	DRY DENSITY (PCF)	MOISTURE CONTENT (%)
X	T-1	3.0	25	325	112.9	14.9
O	T-1	5.0	25	250	110.2	9.7
Δ	T-3	7.0	27	300	117.3	10.7
\square	T-4	10.0	23	400	110.8	14.6

NOTE: TESTS PERFORMED ON SATURATED SAMPLES UNLESS SHOWN BELOW.
 (FM) FIELD MOISTURE
 TESTS PERFORMED ON UNDISTURBED SAMPLES UNLESS SHOWN BELOW.
 (R) SAMPLES REMOLDED AT 90% OF MAXIMUM DRY DENSITY

NorCal Engineering
 SOILS AND GEOTECHNICAL CONSULTANTS

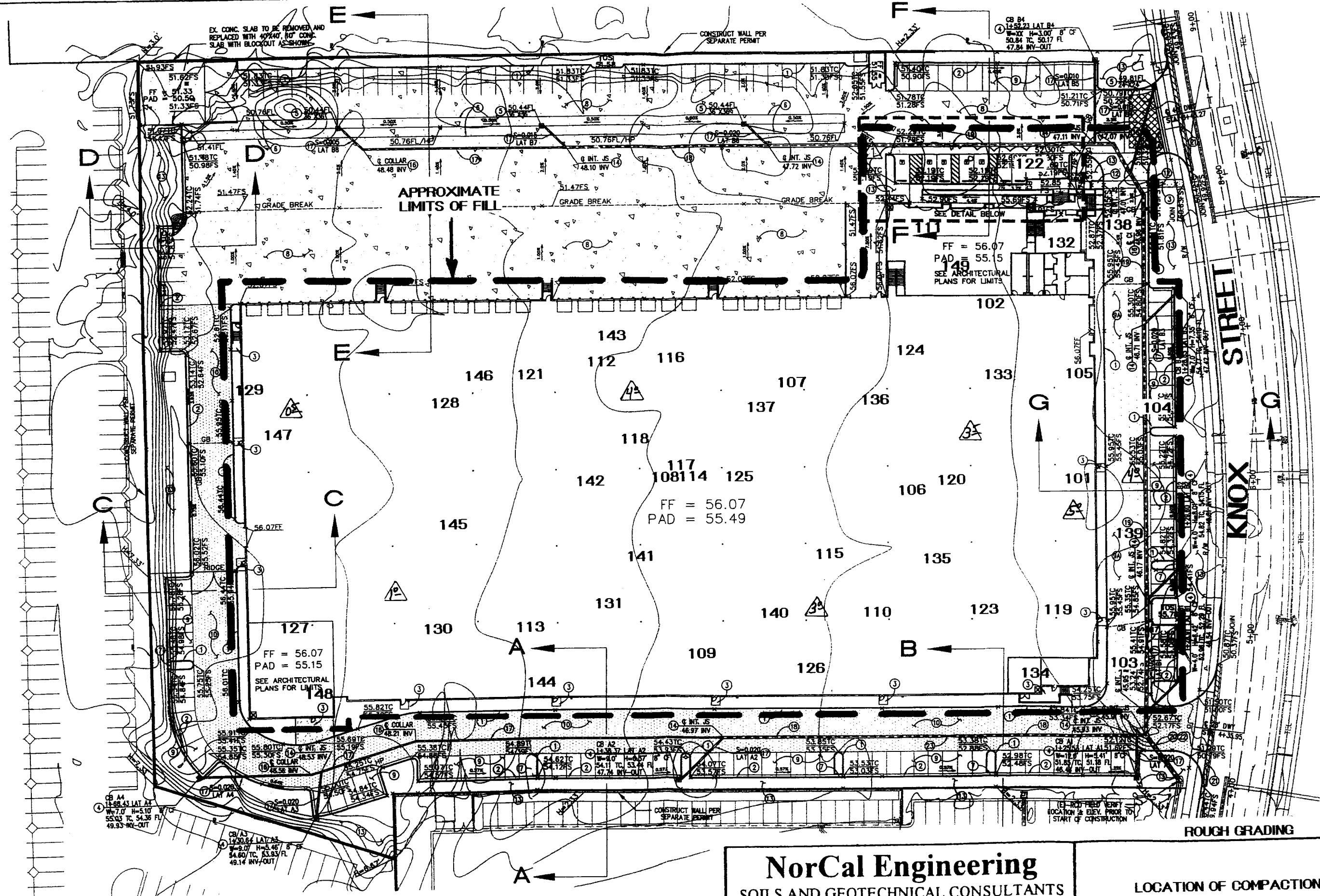
PLATE A
 DIRECT SHEAR TEST RESULTS

PROJECT 11233-04

DATE MARCH 2004

Appendix B

NorCal Engineering



△ = DEPTH OF FILL IN FEET

NorCal Engineering
SOILS AND GEOTECHNICAL CONSULTANTS

OVERTON MOORE

PROJECT 11233-04 | DATE OCTOBER 2005

LOCATION OF COMPACTION TESTS

1"=60'

SUMMARY OF COMPACTION TEST RESULTS

<u>Date of Test</u>	<u>Test No.</u>	<u>Location</u>	<u>Depth</u>	<u>Percent Moisture</u>	<u>Unit Wt. lbs./cu.ft.</u>	<u>Relative Compaction</u>	<u>Soil Type</u>	<u>Test S/D</u>
1/17/05	101	Site Grading	5.0-5.5	14.1	112.1	90	I	S
1/17/05	102	Site Grading	3.0-3.5	12.5	117.3	93	II	S
1/17/05	103	Site Grading	3.0-3.5	14.4	114.5	92	I	S
1/17/05	104	Site Grading	4.0-4.5	15.4	112.7	91	I	S
1/17/05	105	Site Grading	4.0-4.5	13.8	119.9	95	II	S
1/17/05	106	Site Grading	3.5-4.0	11.3	122.2	97	II	S
1/18/05	107	Site Grading	3.0-3.5	14.0	117.5	95	I	S
1/18/05	108	Site Grading	2.0-2.5	16.5	108.1	87	I	S
1/18/05	108A**	Site Grading	5.0-5.5	13.7	114.3	92	I	S
1/18/05	109	Site Grading	2.0-2.5	13.1	117.5	93	II	S
1/18/05	110	Site Grading	2.0-2.5	13.3	115.6	92	II	S
1/18/05	111	Site Grading	2.0-2.5	13.9	117.6	95	I	S
1/18/05	112	Site Grading	4.0-4.5	12.4	118.2	94	II	S
1/18/05	113	Site Grading	1.0-1.5	12.6	120.7	96	II	S
1/18/05	114	Site Grading	3.0-3.5	14.1	113.9	92	I	S
1/18/05	115	Site Grading	1.5-2.0	12.0	116.0	92	II	S
1/18/05	116	Site Grading	2.0-2.5	12.8	112.5	91	I	S
1/18/05	117	Site Grading	2.0-2.5	12.6	113.6	92	I	S
1/18/05	118	Site Grading	3.0-3.5	13.7	117.2	93	III	S
1/18/05	119	Site Grading	2.0-2.5	13.5	112.7	91	I	S
1/18/05	120	Site Grading	2.0-2.5	12.5	114.6	92	I	S
1/18/05	121	Site Grading	1.5-2.0	13.0	118.5	94	II	S
1/19/05	122	Site Grading	1.0-1.5	13.1	115.8	92	II	S
1/19/05	122A**	Site Grading	1.0-1.5	13.0	119.3	95	III	S
1/19/05	123	Site Grading	1.0-1.5	12.9	120.5	96	III	S
1/19/05	124	Site Grading	1.0-1.5	12.0	121.4	96	II	S
1/19/05	125	Site Grading	1.0-1.5	13.6	117.9	95	I	S
1/19/05	126	Site Grading	0.5-1.0	13.3	120.0	97	I	S
1/19/05	127	Site Grading	0.5-1.0	12.7	122.4	97	II	S
1/19/05	128	Site Grading	1.0-1.5	13.3	118.2	95	I	S
1/19/05	129	Site Grading	0.5-1.0	12.4	120.9	96	III	S
1/19/05	130	Site Grading	1.0-1.5	12.6	120.6	96	II	S

**Retest of failing tests after area reworked
S= Sand Cone Method

SUMMARY OF COMPACTION TEST RESULTS

<u>Date of Test</u>	<u>Test No.</u>	<u>Location</u>	<u>Depth</u>	<u>Percent Moisture</u>	<u>Unit Wt. lbs./cu.ft.</u>	<u>Relative Compaction</u>	<u>Soil Type</u>	<u>Test S/D</u>
1/19/05	131	Site Grading	1.5-2.0	12.6	119.8	97	I	S
1/20/05	132	Site Grading	0.5-1.0	12.3	122.8	97	II	S
1/20/05	133	Site Grading	0.0-0.5	12.9	117.8	95	I	S
1/20/05	134	Site Grading	0.0-0.5	13.5	118.9	96	I	S
1/20/05	135	Site Grading	0.0-0.5	13.0	120.3	95	II	S
1/20/05	136	Site Grading	0.0-0.5	13.7	120.4	97	I	S
1/21/05	137	Site Grading	0.0-0.5	12.7	120.6	96	II	S
1/21/05	138	Site Grading	2.0-2.5	13.2	117.4	93	II	S
1/21/05	139	Site Grading	1.0-1.5	12.6	119.8	95	II	S
1/21/05	140	Site Grading	0.0-0.5	12.5	121.7	97	II	S
1/21/05	141	Site Grading	0.0-0.5	12.7	118.8	96	I	S
1/21/05	142	Site Grading	0.0-0.5	12.9	119.5	96	I	S
1/22/05	143	Site Grading	0.0-0.5	12.6	118.1	95	I	S
1/22/05	144	Site Grading	0.0-0.5	13.4	119.0	96	I	S
1/22/05	145	Site Grading	0.0-0.5	12.5	120.5	96	II	S
1/22/05	146	Site Grading	0.0-0.5	12.8	122.3	97	II	S
1/22/05	147	Site Grading	0.0-0.5	13.1	116.7	94	I	S
1/22/05	147A**	Site Grading	0.0-0.5	13.1	118.1	95	I	S
1/22/05	148	Site Grading	0.0-0.5	12.6	119.0	96	I	S
1/22/05	149	Site Grading	0.0-0.5	12.9	121.3	96	II	S
1/24/05	150	Site Grading	1.0-1.5	12.6	118.1	95	I	S
1/24/05	151	Site Grading	1.5-2.0	13.3	115.5	93	I	S
1/24/05	152	Site Grading	1.0-1.5	13.5	118.9	96	I	S
1/24/05	153	Site Grading	1.5-2.0	12.8	117.0	94	I	S
1/24/05	154	Site Grading	0.5-1.0	13.1	119.3	96	I	S
1/24/05	155	Site Grading	0.5-1.0	10.0	121.4	97	III	S
1/25/05	156	Ramp Subgrade	0.0-0.5	13.6	117.9	95	I	S
1/25/05	157	Sewer	0.0-0.5	12.3	119.5	96	I	S
2/3/05	158	Sewer	6.0-6.5	12.1	117.5	93	II	S
2/3/05	159	Sewer	4.0-4.5	11.6	116.5	92	IV	S
2/3/05	160	Sewer	2.0-2.5	12.1	112.6	91	I	S
2/3/05	161	Sewer	1.0-1.5	10.5	117.3	93	II	S

**Retest of failing tests after area reworked
S= Sand Cone Method

NorCal Engineering

SUMMARY OF COMPACTION TEST RESULTS

<u>Date of Test</u>	<u>Test No.</u>	<u>Location</u>	<u>Depth</u>	<u>Percent Moisture</u>	<u>Unit Wt. lbs./cu.ft.</u>	<u>Relative Compaction</u>	<u>Soil Type</u>	<u>Test S/D</u>
2/3/05	162	Sewer	0.0-0.5	10.9	120.8	96	II	S
2/4/05	163	Sewer	0.0-0.5	13.6	121.9	97	II	S
2/4/05	164	Sewer	0.0-0.5	9.2	120.2	95	IV	S
2/4/05	165	Sewer	3.0-3.5	10.8	116.9	93	III	S
2/4/05	166	Sewer	1.0-1.5	11.2	115.0	91	IV	S
2/4/05	167	Sewer	5.0-5.5	13.4	117.2	93	II	S
2/4/05	168	Sewer	3.0-3.5	11.8	115.3	93	I	S
2/4/05	169	Sewer	1.0-1.5	12.2	115.6	92	III	S
2/4/05	170	Sewer	7.0-7.5	14.2	114.7	91	II	S
2/4/05	171	Sewer	5.0-5.5	13.6	117.4	93	II	S
2/4/05	172	Sewer	3.0-3.5	12.8	117.0	93	III	S
2/7/05	173	Sewer	2.0-2.5	10.5	115.3	91	IV	S
2/7/05	174	Sewer	1.0-1.5	12.1	114.2	92	I	S
2/7/05	175	Sewer	0.0-0.5	13.0	120.7	96	II	S
2/7/05	176	Sewer	0.0-0.5	12.5	120.0	95	II	S
2/7/05	177	Sewer	2.0-2.5	10.9	115.4	92	III	S
2/7/05	178	Sewer	0.0-0.5	11.7	118.2	95	I	S
2/7/05	179	Sewer	0.0-0.5	8.8	121.0	95	V	S
2/10/05	180	Vapor Extraction	0.0-0.5	11.8	122.6	97	II	S
2/10/05	181	Vapor Extraction	0.0-0.5	11.5	121.1	96	II	S
2/10/05	182	Vapor Extraction	0.0-0.5	12.1	119.5	96	I	S
2/10/05	183	Vapor Extraction	0.5-1.0	12.7	120.1	95	II	S
2/10/05	184	Vapor Extraction	0.0-0.5	12.3	114.3	92	I	S
2/10/05	184A**	Vapor Extraction	0.0-0.5	12.5	120.0	97	I	S
2/10/05	185	Storm Drain	3.0-3.5	13.1	114.9	91	II	S
2/10/05	186	Storm Drain	1.0-1.5	12.5	115.6	93	I	S
2/15/05	187	Storm Drain	2.0-2.5	14.1	113.9	92	I	S
2/15/05	188	Storm Drain	1.0-1.5	13.3	112.9	91	I	S
2/17/05	189	Storm Drain	2.5-3.0	12.5	116.2	92	II	S
2/17/05	190	Storm Drain	1.0-1.5	13.1	114.9	93	I	S
3/7/05	191	Vapor Extraction	0.0-0.5	14.4	120.4	96	II	S
3/7/05	192	Vapor Extraction	0.0-0.5	7.9	108.1	87	I	S

**Retest of failing tests after area reworked
S= Sand Cone Method

SUMMARY OF COMPACTION TEST RESULTS

<u>Date of Test</u>	<u>Test No.</u>	<u>Location</u>	<u>Depth</u>	<u>Percent Moisture</u>	<u>Unit Wt. lbs./cu.ft.</u>	<u>Relative Compaction</u>	<u>Soil Type</u>	<u>Test S/D</u>
3/21/05	192A**	Vapor Extraction	0.0-0.5	11.6	118.7	96	I	S
3/21/05	193	Vapor Extraction	0.0-0.5	12.1	121.1	96	II	S
3/21/05	194	Vapor Extraction	0.0-0.5	12.8	119.9	95	II	S
3/22/05	195	Vapor Extraction	0.0-0.5	12.7	120.2	95	II	S
3/22/05	196	Vapor Extraction	0.0-0.5	13.3	121.0	96	II	S
4/5/05	197	Vapor Extraction	0.0-0.5	13.9	122.1	97	II	S
4/5/05	198	Vapor Extraction	0.0-0.5	12.9	120.4	96	II	S
4/5/05	199	Vapor Extraction	0.0-0.5	12.1	118.6	96	I	S
4/5/05	200	Sewer	6.0-6.5	11.9	114.3	92	I	S
4/5/05	201	Sewer	4.0-4.5	12.8	116.8	93	III	S
4/5/05	202	Sewer	2.0-2.5	11.0	114.8	91	II	S
4/5/05	203	Sewer	3.0-3.5	12.1	114.2	92	I	S
4/5/05	204	Sewer	5.0-5.5	13.3	114.7	93	I	S
4/5/05	205	Vapor Extraction	0.0-0.5	11.6	120.9	96	II	S
4/5/05	206	Sewer	3.0-3.5	11.8	116.5	92	IV	S
4/6/05	207	Vapor Extraction	0.0-0.5	12.3	117.9	95	I	S
4/6/05	208	Vapor Extraction	0.0-0.5	13.3	119.2	96	I	S
4/6/05	209	Fndn. Bottom	8.0-8.5	13.0	115.0	91	II	S
4/6/05	210	Fndn. Bottom	7.0-7.5	13.8	111.6	91	VI	S
4/6/05	211	Fndn. Bottom	6.0-6.5	11.9	117.2	93	II	S
4/6/05	212	Fndn. Bottom	5.0-5.5	13.4	111.1	91	VI	S
4/6/05	213	Fndn. Bottom	5.0-5.5	10.5	116.7	92	IV	S
4/6/05	214	Vapor Extraction	0.0-0.5	11.9	119.2	96	I	S
4/6/05	215	Vapor Extraction	0.0-0.5	13.5	117.9	95	I	S
4/6/05	216	Vapor Extraction	0.0-0.5	12.9	122.4	97	II	S
4/6/05	217	Sewer	5.0-5.5	12.2	114.3	91	II	S
4/6/05	218	Sewer	3.0-3.5	12.3	115.0	93	I	S
4/6/05	219	Sewer	1.0-1.5	12.6	114.2	92	I	S
4/13/05	220	Storm Drain	2.0-2.5	13.1	114.9	91	II	S
4/13/05	221	Storm Drain	0.5-1.0	12.7	121.3	96	II	S
4/13/05	222	Storm Drain	0.5-1.0	12.9	115.1	91	II	S
4/13/05	223	Storm Drain	2.0-2.5	13.4	115.6	93	I	S

**Retest of failing tests after area reworked
S= Sand Cone Method

NorCal Engineering

SUMMARY OF COMPACTION TEST RESULTS

<u>Date of Test</u>	<u>Test No.</u>	<u>Location</u>	<u>Depth</u>	<u>Percent Moisture</u>	<u>Unit Wt. lbs./cu.ft.</u>	<u>Relative Compaction</u>	<u>Soil Type</u>	<u>Test S/D</u>
4/13/05	224	Storm Drain	0.5-1.0	12.5	120.0	95	II	S
4/13/05	225	Storm Drain	1.0-1.5	12.2	116.2	92	II	S
4/13/05	226	Storm Drain	2.0-2.5	11.7	117.3	93	III	S
4/14/05	227	Water	0.5-1.0	12.7	112.7	91	I	S
4/14/05	228	Water	0.5-1.0	11.9	116.2	92	II	S
4/14/05	229	Storm Drain	2.0-2.5	13.3	112.1	90	I	S
4/14/05	230	Storm Drain	0.5-1.0	12.3	114.9	93	I	S
4/14/05	231	Storm Drain	0.5-1.0	10.9	115.5	92	II	S
4/14/05	232	Storm Drain	1.0-1.5	12.9	115.1	91	II	S
4/14/05	233	Storm Drain	2.0-2.5	13.8	116.9	93	II	S
4/14/05	234	Storm Drain	0.5-1.0	13.0	115.0	91	II	S
4/14/05	235	Storm Drain	0.5-1.0	13.4	113.8	92	I	S
4/15/05	236	Storm Drain	2.5-3.0	12.4	113.9	92	I	S
4/15/05	237	Storm Drain	0.5-1.0	11.6	116.5	92	II	S
4/15/05	238	Storm Drain	2.0-2.5	13.3	113.0	91	I	S
4/15/05	239	Storm Drain	1.5-2.0	12.2	113.6	90	II	S
4/16/05	240	Storm Drain	3.0-3.5	10.9	117.2	93	IV	S
4/16/05	241	Storm Drain	1.0-1.5	11.1	116.1	92	III	S
4/16/05	242	Storm Drain	4.0-4.5	10.5	115.3	91	IV	S
4/16/05	243	Storm Drain	2.0-2.5	10.8	117.3	93	IV	S
4/16/05	244	Storm Drain	2.0-2.5	10.3	114.4	91	III	S
4/16/05	245	Storm Drain	3.0-3.5	10.6	115.1	92	III	S
4/16/05	246	Storm Drain	2.0-2.5	11.0	113.9	90	IV	S
4/16/05	247	Storm Drain	1.0-1.5	10.6	116.6	93	III	S
4/16/05	248	Storm Drain	2.0-2.5	10.2	115.0	91	IV	S
4/16/05	249	Storm Drain	0.0-0.5	10.4	116.6	93	III	S
4/16/05	250	Storm Drain	0.0-0.5	10.8	115.4	92	III	S
4/20/05	251	Fire Service	2.0-2.5	15.0	107.6	87	I	S
4/20/05	251A**	Fire Service	2.0-2.5	13.8	115.5	93	I	S
4/20/05	252	Fire Service	2.0-2.5	11.7	116.3	92	II	S
4/21/05	253	Fire Service	1.0-1.5	12.1	114.2	91	II	S
4/21/05	254	Fire Service	1.5-2.0	13.9	115.7	92	II	S

**Retest of failing tests after area reworked
S= Sand Cone Method

SUMMARY OF COMPACTION TEST RESULTS

<u>Date of Test</u>	<u>Test No.</u>	<u>Location</u>	<u>Depth</u>	<u>Percent Moisture</u>	<u>Unit Wt. lbs./cu.ft.</u>	<u>Relative Compaction</u>	<u>Soil Type</u>	<u>Test S/D</u>
4/21/05	255	Fire Service	2.0-2.5	12.5	117.3	93	II	S
4/21/05	256	Fire Service	1.0-1.5	14.5	113.5	92	I	S
4/21/05	257	Fire Service	1.0-1.5	13.2	114.8	91	II	S
4/21/05	258	Fire Service	2.0-2.5	13.5	115.6	93	I	S
4/21/05	259	Fire Service	1.0-1.5	14.5	112.7	91	I	S
4/21/05	260	Fire Service	1.0-1.5	13.8	115.1	93	I	S
4/21/05	261	Fire Service	1.5-2.0	12.9	116.1	92	II	S
4/21/05	262	Fire Service	1.0-1.5	13.2	113.0	91	I	S
4/21/05	263	Fire Service	1.5-2.0	13.6	117.1	93	II	S
4/21/05	264	Fire Service	1.0-1.5	11.2	115.3	91	IV	S
4/21/05	265	Fire Service	0.5-1.0	13.3	114.7	93	I	S
4/21/05	266	Fire Service	1.0-1.5	12.7	112.7	91	I	S
4/21/05	267	Fire Service	1.0-1.5	13.1	115.8	93	I	S
5/26/05	268	Wall Backfill	1.5-2.0	11.7	116.0	92	III	S
5/26/05	269	Wall Backfill	1.5-2.0	11.1	114.8	91	IV	S
5/27/05	270	Wall Backfill	1.0-1.5	11.5	115.2	93	I	S
5/27/05	271	Wall Backfill	1.0-1.5	12.8	114.4	91	II	S
5/27/05	272	Wall Backfill	1.0-1.5	11.5	113.9	90	II	S
5/27/05	273	Wall Backfill	1.5-2.0	12.9	108.1	86	II	S
5/27/05	273A**	Wall Backfill	1.5-2.0	12.4	113.8	90	II	S
5/27/05	274	Wall Backfill	1.5-2.0	13.8	114.2	92	I	S
5/27/05	275	Wall Backfill	1.0-1.5	10.3	108.1	86	III	S
5/27/05	275A**	Wall Backfill	1.0-1.5	10.9	115.5	92	III	S
5/27/05	276	Wall Backfill	0.0-0.5	10.1	120.2	95	IV	S
5/31/05	277	Wall Backfill	1.0-1.5	13.7	115.6	92	II	S
5/31/05	278	Wall Backfill	1.0-1.5	13.3	113.8	91	II	S
5/31/05	279	Wall Backfill	0.0-0.5	13.5	116.8	93	II	S
5/31/05	280	Wall Backfill	0.0-0.5	14.1	118.0	95	I	S
5/31/05	281	Wall Backfill	0.0-0.5	10.5	120.4	95	IV	S
6/8/05	282	Curb/Gutter Sg.	0.0-0.5	11.5	117.3	93	II	S
6/8/05	283	Curb/Gutter Sg.	0.0-0.5	10.9	116.6	92	IV	S
6/8/05	284	Curb/Gutter Sg.	0.0-0.5	10.3	116.9	93	III	S

**Retest of failing tests after area reworked
S= Sand Cone Method

SUMMARY OF COMPACTION TEST RESULTS

<u>Date of Test</u>	<u>Test No.</u>	<u>Location</u>	<u>Depth</u>	<u>Percent Moisture</u>	<u>Unit Wt. lbs./cu.ft.</u>	<u>Relative Compaction</u>	<u>Soil Type</u>	<u>Test S/D</u>
6/8/05	285	Curb/Gutter Sg.	0.0-0.5	11.3	114.9	91	II	S
6/9/05	286	Curb/Gutter Sg.	0.0-0.5	11.1	114.5	91	II	S
6/9/05	287	Curb/Gutter Sg.	0.0-0.5	10.5	117.6	93	I	S
6/9/05	288	Curb/Gutter Sg.	0.0-0.5	11.0	117.1	93	III	S
6/9/05	289	Curb/Gutter Sg.	0.0-0.5	11.9	111.7	90	I	S
6/9/05	290	Curb/Gutter Sg.	0.0-0.5	11.7	116.6	92	IV	S
6/9/05	291	Curb/Gutter Sg.	0.0-0.5	12.2	113.5	90	II	S
6/9/05	292	Drive App. Sg.	0.0-0.5	14.1	113.0	91	I	S
6/9/05	293	Ramp Backfill	1.0-1.5	10.5	122.4	96	V	S
6/9/05	294	Ramp Subgrade	0.0-0.5	13.1	120.2	95	II	S
6/16/05	295	Electrical	1.0-1.5	13.6	115.7	92	II	S
6/16/05	296	Electrical	1.0-1.5	11.6	113.8	90	II	S
6/16/05	297	Electrical	1.5-2.0	15.0	114.8	93	I	S
6/16/05	298	Electrical	0.0-0.5	14.2	113.1	91	I	S
6/16/05	299	Electrical	0.0-0.5	13.9	114.3	92	I	S
6/16/05	300	Electrical	0.0-0.5	11.2	116.5	93	III	S
6/17/05	301	Stair Backfill	2.0-2.5	10.5	114.9	92	III	S
6/17/05	302	Stair Backfill	0.0-0.5	11.5	113.6	90	II	S
6/20/05	303	Curb/Gutter Sg.	0.0-0.5	12.2	113.2	91	I	S
6/20/05	304	Curb/Gutter Sg.	0.0-0.5	11.1	113.4	91	I	S
6/20/05	305	Curb/Gutter Sg.	0.0-0.5	11.5	117.5	93	II	S
6/20/05	306	Curb/Gutter Sg.	0.0-0.5	12.0	116.2	92	II	S
6/20/05	307	Electrical	1.0-1.5	11.6	113.8	92	I	S
6/20/05	308	Electrical	0.5-1.0	12.4	112.1	90	I	S
6/24/05	309	Drive App. Sg.	0.0-0.5	8.2	120.6	96	VII	S
6/29/05	310	Vapor Extraction	0.0-0.5	16.5	109.3	87	III	S
6/29/05	310A**	Vapor Extraction	0.0-0.5	12.7	116.9	93	III	S
6/29/05	311	Vapor Extraction	0.0-0.5	11.1	114.8	91	IV	S
6/29/05	312	Vapor Extraction	0.0-0.5	11.3	116.1	92	IV	S
6/29/05	313	Vapor Extraction	0.0-0.5	13.0	116.7	93	III	S
6/29/05	314	Vapor Extraction	0.0-0.5	11.8	117.7	93	IV	S
6/30/05	315	Vapor Extraction	0.0-0.5	10.6	114.4	90	IV	S

**Retest of failing tests after area reworked
S= Sand Cone Method

SUMMARY OF COMPACTION TEST RESULTS

<u>Date of Test</u>	<u>Test No.</u>	<u>Location</u>	<u>Depth</u>	<u>Percent Moisture</u>	<u>Unit Wt. lbs./cu.ft.</u>	<u>Relative Compaction</u>	<u>Soil Type</u>	<u>Test S/D</u>
7/8/05	316	Vapor Extraction	0.0-0.5	9.8	118.4	95	III	S
7/8/05	317	Vapor Extraction	0.0-0.5	10.2	122.0	96	IV	S
7/8/05	318	Vapor Extraction	0.0-0.5	11.4	120.5	95	IV	S
7/14/05	319	Vapor Extraction	0.0-0.5	10.0	120.9	96	IV	S
7/14/05	320	Vapor Extraction	0.0-0.5	10.8	120.3	96	III	S
7/14/05	321	Vapor Extraction	0.0-0.5	9.8	119.5	95	III	S
7/15/05	322	Vapor Extraction	0.0-0.5	10.3	120.2	96	III	S
7/15/05	323	Vapor Extraction	0.0-0.5	9.9	120.4	95	IV	S
7/21/05	324	Vapor Extraction	0.0-0.5	12.9	109.8	87	III	S
7/21/05	324A**	Vapor Extraction	0.0-0.5	10.8	120.6	96	III	S
7/21/05	325	Vapor Extraction	0.0-0.5	11.1	122.4	97	IV	S
7/21/05	326	Vapor Extraction	0.0-0.5	12.5	120.8	96	III	S
7/25/05	327	Vapor Extraction	0.0-0.5	12.9	122.2	97	III	S
7/25/05	328	Vapor Extraction	0.0-0.5	11.9	119.4	95	III	S
7/30/05	329	Storm Drain	4.0-4.5	11.1	116.1	92	IV	S
7/30/05	330	Storm Drain	2.0-2.5	10.7	116.6	93	III	S
7/30/05	331	Storm Drain	3.0-3.5	11.5	115.3	91	IV	S
7/30/05	332	Storm Drain	1.0-1.5	11.7	117.5	93	IV	S
7/30/05	333	Storm Drain	1.0-1.5	11.3	115.3	92	III	S
7/30/05	334	Storm Drain	2.0-2.5	11.5	116.9	93	III	S
7/30/05	335	Storm Drain	1.5-2.0	10.9	115.3	91	IV	S
7/30/05	336	Storm Drain	1.0-1.5	11.2	116.5	93	III	S
7/30/05	337	Storm Drain	0.0-0.5	10.3	116.0	92	III	S
7/30/05	338	Storm Drain	0.0-0.5	10.6	115.7	91	IV	S
7/30/05	339	Storm Drain	0.0-0.5	10.8	114.6	91	III	S
8/2/05	340	Vapor Extraction	0.0-0.5	11.9	120.4	95	IV	S
8/2/05	341	Vapor Extraction	0.0-0.5	11.7	120.7	95	IV	S
8/15/05	342	Vapor Extraction	0.0-0.5	11.7	115.3	92	III	S
8/15/05	343	Vapor Extraction	0.0-0.5	11.2	116.9	93	III	S
8/15/05	344	Vapor Extraction	0.0-0.5	11.5	119.4	95	III	S
8/15/05	345	Vapor Extraction	0.0-0.5	10.9	112.3	93	III	S
8/16/05	346	Vapor Extraction	0.0-0.5	9.5	116.4	92	IV	S

**Retest of failing tests after area reworked
S= Sand Cone Method

SUMMARY OF COMPACTION TEST RESULTS

<u>Date of Test</u>	<u>Test No.</u>	<u>Location</u>	<u>Depth</u>	<u>Percent Moisture</u>	<u>Unit Wt. lbs./cu.ft.</u>	<u>Relative Compaction</u>	<u>Soil Type</u>	<u>Test S/D</u>
8/16/05	347	Vapor Extraction	0.0-0.5	8.9	117.5	93	IV	S
8/16/05	348	Vapor Extraction	0.0-0.5	10.8	114.3	91	III	S
8/16/05	349	Vapor Extraction	0.0-0.5	10.5	116.9	93	III	S
8/16/05	350	Electrical	0.0-0.5	10.3	115.2	91	IV	S
8/16/05	351	Electrical	0.0-0.5	12.6	116.5	93	III	S
8/18/05	352	Electrical	0.0-0.5	10.3	115.6	92	III	S
8/18/05	353	Electrical	0.0-0.5	9.4	114.3	91	III	S
8/18/05	354	Electrical	0.0-0.5	9.8	113.6	90	IV	S
8/18/05	355	Electrical	0.0-0.5	10.6	116.5	92	IV	S
8/18/05	356	Electrical	0.0-0.5	9.9	117.4	93	IV	S
8/22/05	357	Vapor Extraction	0.0-0.5	10.6	119.5	95	III	S
8/22/05	358	Vapor Extraction	0.0-0.5	10.2	115.6	92	III	S
8/25/05	359	Drive App. Sg.	0.0-0.5	9.3	116.6	93	III	S
8/25/05	360	Drive App. Sg.	0.0-0.5	9.9	116.2	92	IV	S
8/25/05	361	Drive App. Sg.	0.0-0.5	9.6	115.2	91	IV	S
8/25/05	362	Drive App. Sg.	0.0-0.5	9.3	115.6	92	III	S
8/25/05	363	Drive App. Sg.	0.0-0.5	9.1	114.1	91	III	S
8/25/05	364	Drive App. Sg.	0.0-0.5	9.2	116.5	93	III	S
8/26/05	365	Curb/Gutter Sg.	0.0-0.5	9.8	115.8	92	IV	S
8/26/05	366	Curb/Gutter Sg.	0.0-0.5	10.9	115.3	92	III	S
8/26/05	367	Curb/Gutter Sg.	0.0-0.5	10.4	117.6	93	IV	S
8/26/05	368	Curb/Gutter Sg.	0.0-0.5	9.5	114.2	90	IV	S
8/26/05	369	Curb/Gutter Sg.	0.0-0.5	9.2	115.6	92	III	S
8/26/05	370	Curb/Gutter Sg.	0.0-0.5	9.8	114.0	91	III	S
8/26/05	371	Curb/Gutter Sg.	0.0-0.5	10.5	117.8	93	IV	S
8/26/05	372	Curb/Gutter Sg.	0.0-0.5	9.9	116.4	92	IV	S
8/31/05	373	Curb/Gutter Base	0.0-0.5	8.3	125.8	97	VIII	S
8/31/05	374	Curb/Gutter Base	0.0-0.5	7.8	126.2	97	VIII	S
9/1/05	375	Parking Subgrade	0.0-0.5	10.9	117.8	93	IV	S
9/1/05	376	Parking Subgrade	0.0-0.5	9.2	115.4	91	IV	S
9/1/05	377	Parking Subgrade	0.0-0.5	10.0	118.2	93	IV	S
9/1/05	378	Parking Subgrade	0.0-0.5	10.5	115.3	92	III	S

**Retest of failing tests after area reworked
S= Sand Cone Method

SUMMARY OF COMPACTION TEST RESULTS

<u>Date of Test</u>	<u>Test No.</u>	<u>Location</u>	<u>Depth</u>	<u>Percent Moisture</u>	<u>Unit Wt. lbs./cu.ft.</u>	<u>Relative Compaction</u>	<u>Soil Type</u>	<u>Test S/D</u>
9/7/05	379	Parking Base	0.0-0.5	9.8	124.6	96	VIII	S
9/7/05	380	Parking Base	0.0-0.5	9.9	126.3	97	VIII	S
9/7/05	381	Parking Base	0.0-0.5	8.6	124.6	96	VIII	S
9/7/05	382	Parking Base	0.0-0.5	8.9	125.8	97	VIII	S
9/7/05	383	Parking Base	0.0-0.5	9.5	124.4	96	VIII	S
9/8/05	384	Parking Base	0.0-0.5	8.1	126.1	97	VIII	S
9/8/05	385	Parking Base	0.0-0.5	9.1	124.3	96	VIII	S
9/8/05	386	Parking Base	0.0-0.5	9.3	124.1	95	VIII	S
9/12/05	387	Site Grading	0.5-1.0	11.1	120.3	95	IV	S
9/12/05	388	Site Grading	0.5-1.0	8.6	120.1	95	IV	S
9/12/05	389	Site Grading	0.5-1.0	9.0	120.6	96	III	S
9/13/05	390	Truck Apron Sg.	0.0-0.5	8.5	120.4	95	IV	S
9/13/05	391	Truck Apron Sg.	0.0-0.5	9.4	120.6	95	IV	S
9/13/05	392	Parking Subgrade	0.0-0.5	8.6	121.5	97	III	S
9/13/05	393	Parking Subgrade	0.0-0.5	11.7	118.8	96	I	S
9/13/05	394	Parking Subgrade	0.0-0.5	9.8	120.4	96	III	S
9/13/05	395	Truck Apron Sg.	0.0-0.5	9.4	120.6	95	IV	S
9/13/05	396	Truck Apron Sg.	0.0-0.5	10.2	122.5	97	IV	S

**Retest of failing tests after area reworked
S= Sand Cone Method

Appendix C

NorCal Engineering

BOARD OF
BUILDING AND SAFETY
COMMISSIONERSLEE KANON ALPERT
PRESIDENTMABEL CHANG
VICE-PRESIDENTCORINA R. ALARCON
JEANETTE APPLAGATE
JOYCE L. FOSTERCITY OF LOS ANGELES
CALIFORNIARICHARD J. RIORDAN
MAYORDEPARTMENT OF
BUILDING AND SAFETY
201 N. FIGUEROA STREET
LOS ANGELES, CA 90012ANDREW A. ADELMAN
GENERAL MANAGERRICHARD E. HOLGUIN
EXECUTIVE OFFICER

January 21, 2000

COMPACTION FILE 5
LOG # 28904-01Boeing Realty Corporation
4060 Lakewood Blvd.
Long Beach, CA 90808-1700TRACT: 52172-02
BLOCK: -----
LOT : 1-12, 15-20PERMIT No. 98030-10000-00170
DISTRICT MAP NO. 57B193
Corrected letter to change lot numbersLOCATION: 1414 WEST 190TH STREET

SUBJECT: SECONDARY STRUCTURAL FILL

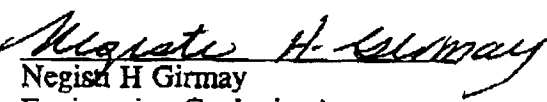
LOTS HAVING COMPACTED FILL: 1-12, 15-20

Soils Compaction Report No. 5936-96, dated October 20, 1999, prepared by NorCal Engineering. Previous report dated August 19, 1999, by Norcal Engineering.

Approval is granted for compacted fill constructed on the above lots as described in the compaction report. Approval is limited to the area shown in the report and by the following conditions:

1. This fill may be used for the support of floor slabs and pavement. However, the fill is not approved for the support of structural footings.
2. Planting and irrigation of cut and fill slopes in hillside areas is required per Code Section 91.7012 of the Los Angeles City Building Code.

For compacted fill to be classified as structural fill, the soil testing laboratory responsible for controlling the placement of the fill must first, certify its placement and secondly, provide the allowable vertical and lateral bearing values which the fill can safely support. Where such values exceed those permitted in Table 18.1.A of the Los Angeles City Building Code, test data and calculations, including settlement calculations, shall be submitted for review.

David Hsu
Chief of Grading Section
Negishi H. Girmay
Engineering Geologist Assoc.
(213) 977-6329
Log # 28904-01cc: NorCal Engineering
Alex Velazquez, SP District Office

NOTE: Grading oversized document is attached. (Document Type 92)



11233-04

**BOARD OF
BUILDING AND SAFETY
COMMISSIONERS****WILLIAM J. ROUSE**
PRESIDENT**ILAN ISRAELY**
VICE-PRESIDENT**EFREN R. ABRATIQUE, P.E.**
FRANCISCO ARRIZON
BARBARA BOUDREAUX**CITY OF LOS ANGELES**

CALIFORNIA

**JAMES K. HAHN**
MAYOR**DEPARTMENT OF
BUILDING AND SAFETY**
201 NORTH FIGUEROA STREET
LOS ANGELES, CA 90012**ANDREW A. ADELMAN, P.E.**
GENERAL MANAGER**RAYMOND CHAN**
EXECUTIVE OFFICER**SOILS REPORT APPROVAL LETTER**

LOG # 43975

SOILS FILE - 2

July 30, 2004

Overton Moore Properties
1125 West 190th Street, # 200
Gardena, Ca 90248TRACT: 52175-02
LOT: 8
LOCATION: 1451 Knox Street

<u>CURRENT REFERENCE REPORT/LETTER(S)</u>	<u>REPORT NO.</u>	<u>DATE(S) OF DOCUMENT</u>	<u>PREPARED BY</u>
Addendum Report	11233-04	05/20/2004	Norcal Engineering
Soils Report	11233-04	03/13/2004	Norcal Engineering
Grading Ovrstd Doc	11233-04	03/13/2004	Norcal Engineering

<u>PREVIOUS REFERENCE REPORT/LETTER(S)</u>	<u>REPORT NO.</u>	<u>DATE(S) OF DOCUMENT</u>	<u>PREPARED BY</u>
Compaction Report	5936-96B	04/07/2003	Norcal Engineering
"	"	03/08/2002	Norcal Engineering
Approval for Compaction Report 39542-01	"	04/25/2004	LADBS

The above current referenced reports concerning the proposed construction of a slab on grade warehouse building have been reviewed by the Grading Division of the Department of Building & Safety. The site is underlain by approved compacted fill. The compacted fill was approved as a secondary fill for both 1451 Knox Street and 1411 W. North 190th Street. The location of the proposed development including the limits of fill is shown on the compaction plot plan included in the current referenced report.

The site is not located within the liquefaction zone as shown on the "Seismic Hazard Zones" map issued by the State of California, and liquefaction study is not required.

The reports are acceptable, provided the following conditions are complied with during site development:

1. The soils engineer shall review and approve the detailed plans prior to issuance of any permit. This approval shall be by signature on the plans which clearly indicates that the